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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/751,943

01/07/2004

Lars Ivar Samuelson

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MILES & STOCKBRIDGE PC  
1751 PINNACLE DRIVE  
SUITE 500  
MCLEAN, VA 22102-3833

EXAMINER

SUCH, MATTHEW W

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/751,943	<b>Applicant(s)</b> SAMUELSON ET AL.	
	<b>Examiner</b> Matthew W. Such	<b>Art Unit</b> 2891	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-66 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 52, 64 and 65, drawn to a magnetic nanowhisker, classified in class 257, subclass 9.
  - II. Claims 1-8 and 13-19, drawn to a non-magnetic nanowhisker on a support structure, classified in class 257, subclass 414.
    - IIA. Claims 4 and 15, , directed to the species of Invention II wherein the nanowhisker comprises a large band gap semiconductor material.
    - IIB. Claims 5 and 16, directed to the species of Invention II, wherein the nanowhisker comprises a resonant tunneling diode.
    - IIC. Claims 6 and 17, directed to the species of Invention II, wherein the nanowhisker comprises a light emitting diode.
    - IID. Claims 7-8 and 18-19, directed to the species of Invention II, wherein the nanowhisker comprises a biologically inert material.
  - III. Claims 9-12, 20-23, 53-62 and 66, drawn to the magnetic nanowhisker of Invention I in combination with a support structure, classified in class 257, subclass 421.
  - IV. Claims 50 and 51, drawn to a method of producing a magnetic nanowhisker, classified in class 438, subclass 903.

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- V. Claims 24-29, 34-36 and 63, drawn to a method of producing a non-magnetic nanowhisker on a support structure, classified in class 438, subclass 962.
  - VA. Claims 27 and 40, directed to the species of Invention II, wherein the nanowhisker comprises a large band gap semiconductor material.
  - VB. Claims 28 and 41, directed to the species of Invention II, wherein the nanowhisker comprises a resonant tunneling diode.
  - VC. Claims 29 and 42, directed to the species of Invention II, wherein the nanowhisker comprises a light emitting diode.
  - VD. Claims 35 and 48, directed to the species of Invention II, wherein the nanowhisker comprises a coaxial oxide.
- VI. Claims 30-33 and 37-49, drawn to the method of Invention VI in combination with a support structure, classified in class 438, subclass 3.

The inventions are distinct, each from the other because of the following reasons:

- 2. Inventions IV-VI are related to Inventions I-III as processes of making and products made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the products of Inventions I-III using nanowhiskers can be made by a conventional arc-discharge method.

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3. Inventions III and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the magnetic nanowhisker of Invention III can be greater than about 25 nm in diameter. The subcombination has separate utility such as a magnetic nanowhisker which is not upstanding on a substrate, such as a magnetic particle in a colloidal suspension.

4. Inventions VI and IV are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the method of Invention VI does not require a step to selectively etch a different material to remove it from the nanowhisker. The subcombination has separate utility such as a method of growing nanowhiskers laterally on a substrate so that it is not upstanding.

5. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

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6. This application also contains claims directed to the following patentably distinct species:

- a. Inventions I and II are species. The species are independent or distinct because Invention I is drawn to a magnetic nanowhisker which is mutually exclusive of a non-magnetic nanowhisker on a substrate, as claimed in Invention II. Currently, no claim is generic.
- b. Inventions IIA-IID are species. The species are independent or distinct because each instance is mutually exclusive from the others as set forth above under Inventions IIA-IID. Currently, claims 1-3 and 13-14 are generic.
- c. Inventions IV and V are species. The species are independent or distinct because Invention IV is drawn to a method to produce a magnetic nanowhisker which is mutually exclusive of a method to produce a non-magnetic nanowhisker on a substrate, as claimed in Invention V. Currently, no claim is generic.
- d. Inventions VA-VD are species. The species are independent or distinct because each instance is mutually exclusive from the others as set forth above in Inventions VA-VD. Currently, claims 24-26, 34, 36-39, 47 and 49 are generic.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

7. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

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application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Contact Information***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is 571-272-8895. The examiner can normally be reached on Monday - Friday 8AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew W. Such  
Examiner  
Art Unit 2891

MWS

  
**B. WILLIAM BAUMEISTER**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**